

**AMENDMENTS TO THE CLAIMS**

The following is a complete, marked-up listing of revised claims with a status identifier in parenthesis, underlined text indicating insertions, and strike through and/or double-bracketed text indicating deletions.

**LISTING OF CLAIMS**

1-34. (Cancelled)

35. (New) A method of facilitating recovery of nuclear fuel from a fuel pool, the method comprising:

graphically populating, via a graphical user interface, a graphical loading map with graphical fuel bundles,  
the graphical fuel bundles representing fuel bundles in at least one fuel pool,  
the populating based on one or more fuel attributes of the fuel bundles in the fuel pool,  
the graphical user interface including one or more loading tools configured to graphically select, sort, filter, or move the graphical fuel bundles into the graphical loading map based on one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles; and  
physically placing the fuel bundles into the reactor core according to the populated loading map.

36. (New) The method of claim 35, wherein the graphical user interface further includes at least one fuel pool table and a reload table, and wherein the graphically populating includes

graphically selecting, sorting, filtering, or moving the graphical fuel bundles within or among the graphical loading map, the at least one fuel pool table, and the reload table via the one or more loading tools, the selecting, sorting, filtering, and moving being based on the one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles.

37. (New) The method of claim 36, further comprising:

storing at least one fuel pool database, the fuel pool database including a fuel pool list of at least one of the fuel bundles residing in the fuel pool; and  
graphically populating the at least one fuel pool table with a graphical representation of at least one of the fuel bundles on the fuel pool list.

38. (New) The method of claim 36, wherein the graphical user interface further includes a fresh fuel table, and wherein the graphically populating includes graphically selecting, sorting, filtering, or moving the graphical fuel bundles within or among the loading map, the at least one fuel pool table, the reload table, and the fresh fuel table via the one or more loading tools, the selecting, sorting, filtering, and moving being based on the one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles.

39. (New) The method of claim 38, further comprising:

storing at least one fresh fuel database, the fresh fuel database including a fresh fuel list of at least one of the fresh fuel bundles; and  
graphically populating the at least one fresh fuel table with a graphical representation of at least one of the fuel bundles on the fresh fuel list.

40. (New) The method of claim 35, further comprising:

analyzing the populated graphical loading map by simulating reactor performance with the populated graphical loading map, the analyzing performed before the physically placing the fuel bundles into the reactor core according to the populated graphical loading map.

41. (New) The method of claim 35, wherein the one or more fuel attributes include at least one of exposure, a previous cycle in which the fuel bundle was used, k infinity, bundle product line, initial uranium loading, initial gadolinium loading, number of axial zones, historical fuel cycle numbers previous to a most recent for which the fuel bundle was used, a corresponding reactor core in which the fuel bundle was resident for each of the historical fuel cycles, accumulated residence time, and fuel bundle pedigree, which is a parameter that reflects usability of the fuel bundle for continued reactor operation

42. (New) A method of facilitating recovery of nuclear fuel from a fuel pool, the method comprising:

providing a graphical user interface including,  
a graphical loading map graphically representing fuel bundles in a reactor core,  
and  
one or more loading tools configured to graphically select, sort, filter, or move graphical fuel bundles into the graphical loading map, based on one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles, at least one of the graphical fuel bundles representing a fuel bundle in a fuel pool;

graphically populating the graphical loading map with at least one of the graphical fuel bundles representing a fuel bundle in the fuel pool, the populating being based on the one or more fuel attributes; and

physically placing the fuel bundles into the reactor core according to the populated loading map.

43. (New) The method of claim 42, wherein the graphical user interface further includes at least one fuel pool table graphically representing bundles in a fuel pool and a reload table, and wherein the method further comprises:

graphically selecting, sorting, filtering, or moving the graphical fuel bundles based on the one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles within or among the fuel pool table and the reload table, wherein the graphically populating the loading map includes graphically populating the loading map with graphical fuel bundles moved into the reload table.

44. (New) The method of claim 43, further comprising:

storing at least one fuel pool database, the fuel pool database including a fuel pool list of at least one of the fuel bundles residing in the fuel pool; and  
graphically populating the at least one fuel pool table with a graphical representation of at least one of the fuel bundles on the fuel pool list.

45. (New) The method of claim 43, wherein the graphical user interface further includes a fresh fuel table, and wherein the graphically populating includes graphically selecting, sorting,

filtering, or moving the graphical fuel bundles within or among the graphical loading map, the at least one fuel pool table, the reload table, and the fresh fuel table via the one or more loading tools, the selecting, sorting, filtering, and moving being based on the one or more fuel attributes of the fuel bundles represented by the graphical fuel bundles.

46. (New) The method of claim 44, further comprising:

storing at least one fresh fuel database, the fresh fuel database including a fresh fuel list of at least a portion of available fresh fuel bundles; and

graphically populating the at least one fresh fuel table with a graphical representation of at least one of the fresh fuel bundles on the fresh fuel list.

47. (New) The method of claim 42, further comprising:

analyzing the populated graphical loading map by simulating reactor performance with the populated graphical loading map, the analyzing performed before the physically placing the fuel bundles into the reactor core according to the populated graphical loading map.

48. (New) The method of claim 42, wherein the one or more fuel attributes include at least one of exposure, a previous cycle in which the fuel bundle was used, k infinity, bundle product line, initial uranium loading, initial gadolinium loading, number of axial zones, historical fuel cycle numbers previous to a most recent for which the fuel bundle was used, a corresponding reactor core in which the fuel bundle was resident for each of the historical fuel cycles, accumulated residence time, and fuel bundle pedigree, which is a parameter that reflects usability of the fuel bundle for continued reactor operation.